POPULATION TODAY

Vol. 18, No. 11 November 1990

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The 1991 Nigerian census vows to count every citizen—even drought-driven migrants like these. (See page 4.)

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FROM THE EDITOR'S DESK

Question: When does 1985 come after 1990?

Answer: When you're waiting for population data.

The above riddle summarizes a data problem common to many disciplines and constantly apparent in the demographic world: When you scrutinize your statistics, you are peering, not at the present, but into the past.

Into the *deep* past, all too often. Like photons flung outward from an exploding star, data for a country or small area come in spectacular spurts that occur only sporadically and such events may take a considerable time to traverse the universe before reaching your ken.

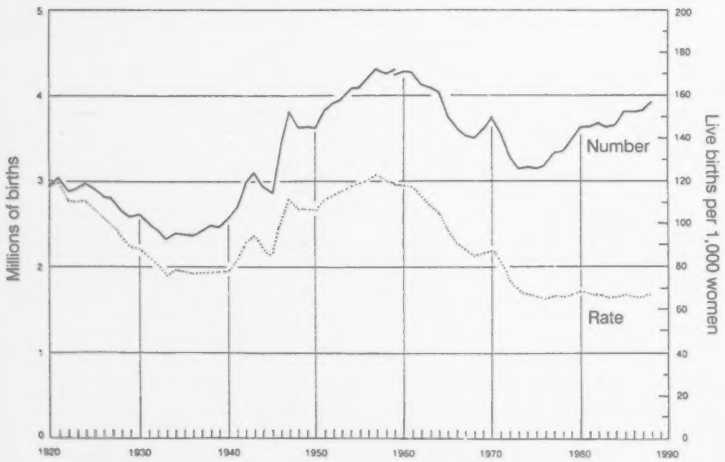
For a particular statistic relating to Country X, say, you would be thrilled to have 1985 data. Unfortunately, you must make do, for now, with 1979 data. Insofar as the arrival of more up-to-date numbers is concerned, 1985 still lies in some Buck Rogers future.

Survey results can help fill in while you wait. But they are never massive or frequent enough to satisfy everyone. Censuses, however, in all their comprehensiveness, do wonders to help you catch up years in a single bound. That's why the U.S. Census is awaited so eagerly every decade. No more falling back on 1980 data to graph the urban-rural distribution of U.S. residents with exactly three children at home. For U.S. population watchers, 1990 is almost here. . . .

–Art Haupt

SPEAKING GRAPHICALLY

Why U.S. Births Increased, Even Though the Fertility Rate Remained Constant



U.S. Live Births and General Fertility Rates, 1920-1988

The general fertility rate is the number of live births per 1,000 women age 15-44. The reason this rate can remain almost level in the late 1970s and 1980s while births drive upward (see figure above) is because the large cohort of women of the baby boom (58 million) has now reached childbearing age.

Source. Monthly Vital Statistics Report, 1990, Vol. 39, No. 4 Supplement.

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Recycled Paper

New Ties: Population and Environment

Item: At current rates of destruction, the Rondônian rainforests of Brazil will be wiped out in 25 years. The loss of habitat is caused in large part by a new frontier population of migrants who come to take jobs as loggers, ranchers, miners, and farmers.

–Time, 1/2/89

Item: Water rights disputes are on the increase in the western United States, where burgeoning cities compete with agriculture in this eternally arid region.

–Wall Street Journal, 8/16/89

Item: Environmental organizations take on more population concerns, lobbying hard on the issues.

–Science, 5/11/90

There is a common thread to these news items: People are starting again to think in terms of the interrelatedness of population and environmental issues.

Population groups and environmental groups, once somewhat aloof from each other, have been cooperating more. They are lobbying together, attending conferences together, sharing expertise, and–increasingly–adopting each others' issues as their own.

Learning to Cooperate

In the 1980s, two major environmental groups, the Sierra Club and the Audubon Society, began to place more emphasis on population programs, especially in their international operations. The Audubon Society has a population program, with activities to educate and motivate their members to work on population issues. The Sierra Club now has a full-time population lobbyist on staff. Other environmental groups, such as the National Wildlife Federation, are creating positions for the study and advocacy of population issues. The National Resources Defense Council has determined, for the first time, to list world population stabilization as one of its priorities.

Population and environmental issues themselves have changed since the high point of public interest in the 1960s. Population organizations have seen reproductive issues become highly politicized. As the atmosphere thickened with harsh rhetoric, legal battles, and uncertainty, many Americans started to duck population issues –leaving them to the courts, politicians, and special interest groups to sort out.

NASA

Both population and environmental pressures threaten the biosphere.

The environmental movement, meanwhile, experienced a different but also important backlash, due in part to concerns from some quarters that the environmental reforms might be too costly to implement and changing priorities of government and business.

But times are changing; population and environmental issues are finding their place on the public agenda again. New coalitions comprised of religious, civil rights, international development, and political advocacy groups have joined in the national debate. Such groups include InterAction, a coalition of private, voluntary organizations (PVOs) involved with foreign assistance, and the Global Tomorrow Coalition that promotes environmental, population, and sustainable development issues.

For groups used to working exclusively in their own field, collaborating with another discipline is not always a smooth process. Says Fran Weber, director of international issues at the National Audubon Society: "Phase one of the relationship between the two groups was a matter of their recognizing the linkage of their issues. The second phase is much more difficult. Now population and environmental groups must specifically address each other's programmatic areas. It takes time and strong commitments."

Such efforts are now bearing fruit in the Audubon Society's organization of a coalition of groups to lobby for increased appropriations for the population program of the Agency for International Development.

Signs of Change

Although signs of change are on the horizon, formal legislation has not yet passed the U.S. Congress. Two major proposals introduced in 1990 linked environmental legislation to population assistance and growth concerns. The Global Warming Bill introduced by Sen. Tim Wirth (D–CO) called for major increases in family planning to slow global warming. (The bill's population language, however, was gutted in committee.) The House version of that bill (HR 1078), sponsored by Rep. Claudine Schneider (R–RI), called for the United States to up its international population assistance from $220 million to $500 million, and to roll back the Reagan Era policies that forbid funding to population organizations that engage in abortion-related activites. It appears, however, that this bill will make no more progress than an earlier bill introduced by Sen. Albert Gore (D–TN), which linked population and global warming issues.

Meanwhile, the U.S. Environmental Protection Agency seems to be considering population stabilization on its official agenda. A recent issue of the *EPA Journal* featured a forum of six commentators on the question, "How Big Is the Population Factor?" In the lead story of the same issue, Lester Brown called for stabilizing population size to avoid "a wholesale deterioration in living conditions in much of the world." Brown is president of Worldwatch Institute, an organization

Continued on page 9

UN Projections Rise Slightly Higher than 1989

The UN Population Division has released its latest assessment of where world population numbers are headed for the next 35 years.

Conducted every two years, the country-by-country assessment is one of the world's most thorough and comprehensive. The release of these statistics is an event that international population specialists always await with eagerness. This year's study projects a world population of 6.261 billion in 2000, and 8.504 billion in 2025. These medium-variant numbers are slightly higher than the previous assessment, released in 1988. But the rise is only a few tens of millions over the 1988 estimates. The 1988 assessment, by contrast, showed a considerable rise over 1984—a rise that by 2025 amounted to hundreds of millions—because fertility around the world was falling more slowly than anticipated.

Conducting a comprehensive assessment is a considerable task; population projections cannot be done with simple pocket calculator bank-interest formulas. The cohort-component method is used for each country. That is, the known (or estimated) age-sex structure of the country is first obtained in five-year age groups. Age-specific fertility and mortality figures are applied to these numbers. As births and deaths occur, the population changes through time. These changes themselves affect further changes, and so forth.

The underlying fertility and mortality rates also change through time; for example, the UN's medium-variant projection posits the world's total fertility rate (TFR) as declining from an average 3.45 lifetime children per woman as of 1985-1990 to 2.27 in 2020-2025. Meanwhile, the world life expectancy, 63.9 years in 1985-1990, rises to 72.9 years in 2020-2025.

The projections assume that the TFR of the less developed countries will fall from the present 3.94 to 2.32 by 2025, almost replacement-level fertility. But while the more developed countries (with a projected TFR of 1.89 as of 1985-1990) are assumed to experience a slight fertility rise, the assessment does not assume that they will attain replacement level within the time span covered.

Summary of the UN Assessment for 1990

Region and projection variant	Projected population in millions		
	1990	2000	2025
World			
High	5,327	6,420	9,444
Medium	5,292	6,261	8,504
Low	5,262	6,093	7,591
More developed countries			
High	1,210	1,286	1,466
Medium	1,207	1,264	1,354
Low	1,203	1,246	1,254
Less developed countries			
High	4,117	5,134	7,978
Medium	4,086	4,997	7,150
Low	4,059	4,847	6,336

Source. United Nations, *1990 Revision of World Population Prospects* (New York: United Nations, 1990).

The assessment (its formal title is *1990 Revision of World Population Prospects)* is prepared by the Estimates and Projections Section of the UN's Population Division. About half-a-dozen staff demographers are involved full-time for two years in its preparation.

The largest portion of their labor is applied not to the projections of the future, but to country-by-country estimates of the past, from 1950 to the present. What data do the UN use? "Whatever we can get our hands on," says Population Officer Joseph Alfred Grinblat of the Estimates and Projections Section. "Official statistics, analyses, surveys. . . . The past doesn't change but the knowledge of the past does."

The assessment's tables of past populations and vital rates are as comprehensive as those for the present and future. By comparison, the projections are a mathematical operation. Once the laboriously prepared estimates and assumptions are figured in, the actual projections are churned out by a mainframe computer in the Population Division.

Because of the scope of such an effort, few other population organizations try to assess world population trends so comprehensively. Two organizations that do are the World Bank, which performs extensive population projections for its reports, and the U.S. Census Bureau, which publishes its own projections. Neither organization, however, evaluates the past as extensively as the UN assessment.

PRB's annual *World Population Data Sheet* credits its population totals and vital rates to the UN assessment, as well as to other UN studies, other sources, and PRB's own evaluations.

The UN's *1990 Revision of World Population Prospects* was released in May, and is available on computer tapes and diskettes. A printed bound version will be available in about a year.

—A.H.

For further information, contact: Estimates and Projections Section, Population Division, Department of International Economic and Social Affairs, United Nations, New York, N.Y. 10017.

Nigeria Prepares for Census

In November 1991, Nigeria will conduct a census, an event long in preparation by that country's National Population Commission. One task on the commission's agenda is studying the many reasons why Nigeria's previous two censuses failed.

Ibanhim Biu, associate director of public affairs for the commission, explained some of the past problems on a recent Washington visit. For example, the 1963 and 1973 census operations lacked maps, clearly marked census boundaries, computers, and trained enumerators. The commission did not

Continued on next page

Nigerian Census
Continued from previous page

advertise that the census was being undertaken, and since each census was taken over the course of several months rather than everywhere simultaneously, many people were missed. As an enumerator for the 1973 census, Biu witnessed how easily data could be improperly manipulated in such an open system.

Population estimates for Nigeria range around the 119 million mark. The commission is determined to count every Nigerian in 1991. It has divided Nigeria into 200,000 census tracts of about 500 people each. These small areas will enable the commission to quickly detect enumeration problems. Census pretests have been held in some areas.

The commission is already training enumerators and distributing census publicity, using music and radio to explain the importance of the census to the public.

Biu has made frequent trips across the country to scout out problems in advance. He has found, for example, that the census posters are essentially useless in areas where people work from early morning until dark because people never see the posters.

The census will collect data through door-to-door interviews and by fingerprinting, over a period of three days. The government will restrict people's movement during this time to avoid multiple counts.

This census will include punishment for enumerators and interviewees who fabricate data.

Nigeria is a heterogenous country, so much so that authoritative numbers concerning subpopulations would be a subject of controversy. Hence, questions on sensitive issues—tribe, ethnicity, or religion—will not be included in the census. Detailed information on social and economic characteristics will be collected at a later date.

The commission is calling for help from international organizations, especially in training statistics analysts. The United Nations Population Fund is one organization supporting the census.

—M.Y.

SURVEY REPORT

Sudan

With the publication of preliminary results from the Sudan Demographic and Health Survey 1989-1990 (SDHS), Phase I of the Demographic and Health Surveys project is complete. Phase II has already begun and will include about 25 additional country surveys.

If recent fertility rates continue, according to the SDHS, Sudanese women will have on average five children by age 50. This represents a decline of one child per woman from the rate of six found in 1979. Much of the decline has taken place among women age 15-29. More than a fourth of married women say they want no more children, and another third want to wait at least two years before having another child.

Seventy-one percent of married women in Sudan recognize at least one method of family planning; virtually all of these women recognize the pill. Six in 10 say they know where to obtain a modern method. Although a fourth of married women have used some method of family planning in the past, only 9 percent are currently practicing family planning. The most frequently used method is the pill (3.9 percent), followed by periodic abstinence (2.2 percent), female sterilization (0.8 percent), and the IUD (0.7 percent).

Use of family planning varies greatly by place of residence and level of education. Seventeen percent of urban married women, but only 4 percent of rural women, practice family planning. Women with secondary or higher education are eight times more likely to use family planning than women with no education. Of those surveyed, 58 percent had no education and 63 percent lived in rural areas.

About equal proportions of women using a modern method of family planning received their method most recently from a government hospital (21 percent), a government health center (23 percent), or a pharmacy (23 percent). Most users of periodic abstinence obtained information about the method from friends or relatives (53 percent), and one in five received information from a private doctor.

Among married women who are not currently using family planning, but who said they would be unhappy if they became pregnant soon, 39 percent felt they were not at risk of pregnancy because they are breastfeeding, menopausal, or have infrequent sexual intercourse. Another 21 percent said they lack enough knowledge, and 12 percent were concerned about health effects.

For the majority of the births in the five years prior to the SDHS, mothers received some antenatal care. Forty-five percent of the mothers received a tetanus toxoid injection, and 71 percent had at least one prenatal checkup by a doctor, trained health worker or midwife.

About three-quarters of children age 12-23 months reportedly received at least one vaccination against childhood disease. But only half have received all the recommended vaccinations. Coverage is greater for male children, those in the urban areas, and those whose mothers have at least a primary education.

Diarrhea and acute respiratory infections are common among children in Sudan. About one in three children under age five had diarrhea in the two weeks prior to the survey, and about a third of these children were treated with oral rehydration therapy. Half of the children under age five had a cough and 60 percent were taken to a medical facility for consultation.

—B.C.S.

DEMOGRAPHER'S PAGE

Unmet Need and Nonuse of Family Planning in Botswana

by Gwenda Brophy

Measuring unmet need—that is, developing a quantitative indicator that shows the proportion of women, by age and by socioeconomic status or geographical location, who are in need of family planning services—is of key interest to family planning program providers.[1] Identifying unmet need has important implications for targeting underserved groups and making efficient use of resources. However, while the concept is simple enough in principle, estimating unmet need in a meaningful way is much more complex in practice.

The main problem is deciding on the pool of women who should be considered. Variations in this pool's composition can result in vastly different results.[2] For example, current unmet need may be low if women who are temporarily not at risk of pregnancy, such as women who are amenorrheic or already pregnant, are excluded from the pool. The following analysis looks at current and potential unmet need in Botswana and examines reasons for nonuse of family planning.

The Context

In a continent with low contraceptive use, a result of both high desired fertility and insufficient delivery systems for family planning services,[3] Botswana (population 2.2 million) stands out. The country has one of sub-Saharan Africa's highest reported contraceptive prevalence rates.

The 1988 Botswana Family Health Survey II (BFHSII), a national sample of 4,368 women age 15-49, recorded contraceptive use of 33 percent among women in union.[4] Nevertheless, even in countries with relatively high prevalence, sizable additional demand for contraceptive services can exist.[5]

The denominator for contraceptive prevalence is all women in union regardless of their status. Women who are currently pregnant, amenorrheic following a birth, or infecund are included in this denominator, but constitute only a small portion of the contraceptive users in the numerator.

Two important points. First, reported status in surveys is subject to misreporting. For example, those reported as pregnant should more accurately be termed recognizably pregnant, since some women may not be aware of a current pregnancy; some of the older women reporting themselves as amenorrheic may have drifted from that status into infecundity; self-reported infecundity tends to underreport true infecundity, and some of those who say they are amenorrheic may have in fact resumed ovulation.

Second, some women were in more than one status simultaneously. Among all women age 15-49, for example, 16 percent were also breastfeeding and 5 percent were amenorrheic. As Table 1 shows, a relatively high proportion of the surveyed women had a current status of met need because so many were pregnant or amenorrheic, or wanted to become pregnant. Before age 30-34, the bulk of unmet need appears to be for spacing; after that age, unmet need for limiting births predominates. Converting the unprotected nonusers into contraceptive users would result in an increase of 199 users, equivalent to a contraceptive prevalence rate of 45 percent.

The current unmet need, however, may be inflated by two factors: underreporting of infecundity, which does appear too low, and spousal separation. Much internal migration exists in Botswana, as men travel to work to

Table 1. Contraceptive Status of Women, Botswana, 1988

Contraceptive status	Percent of women in union, by age group						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Protected/met need							
Using contraception	17.2	25.8	37.1	35.6	38.3	36.1	16.7
Pregnant	14.0	12.2	11.4	9.7	7.8	4.3	0.4
Amenorrheic/abstaining[a]	21.5	19.1	22.1	18.0	15.0	11.1	7.2
Infecund/menopausal[b]	0.0	0.0	0.0	0.4	0.6	3.1	14.7
Wants a birth soon[c]	36.9	34.2	20.1	25.6	24.5	29.2	36.7
Undecided[d]	0.0	0.3	0.2	0.2	2.0	0.9	0.0
Unprotected/unmet need, by reproductive intention							
Want to space	8.6	7.6	6.7	5.5	2.1	2.1	0.0
Want to limit	1.9	0.4	2.4	5.0	9.7	13.2	24.3
Total	100	100	100	100	100	100	100
Number of women	54	238	420	382	290	182	140

a. Does not include amenorrheic women using a modern contraceptive.
b. Self-reported infecundity or menopausal status.
c. Women who would be happy, or it would not matter, if they got pregnant in the next few weeks, and women who want a birth within two years *and are not using* family planning.
d. Women who are undecided about reproductive intentions (those undecided about the timing are included in the "want to space" group.) Undecided also includes 19 women for whom no information was available regarding reproductive intentions.

Source. Botswana Family Health Survey II, 1988.

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living in the United Kingdom

lands far away from their home village.

We have so far considered only the current status of unmet need. Table 2 shows the reproductive intention of women who are currently pregnant or amenorrheic. (For pregnant women, this means their reproductive intention after the current birth.)

Analysis of the main reason for nonuse given by women who would be unhappy if they became pregnant in the next few weeks, suggests that the key factor is the woman's own attitude toward family planning formed by her own opposition to family planning, the influence on her of others' opposition, or concerns about health issues. However, as Ainsworth has pointed out, a survey question on the main reason for nonuse neglects to take into account that "in fact, many reasons may apply. Reducing any one of these, therefore, may merely shift the distribution of responses rather than reduce nonuse."[6]

Costs do not play a significant role in decisions whether or not to use contraception. This is not surprising given the low charges (an annual fee of 0.4 Pula, or about one dollar) levied by the government program that provides the bulk of Botswana's family planning services.[7] Geographical distance, too, appears to be relatively unimportant, or at least does not correlate with whether users feel contraceptives are "difficult to get."

Well-constructed qualitative research may suggest the prevailing "package" of costs to women in adopting family planning. Additional areas for exploration include analyzing the "elasticity" of the desires to limit births and determining to what extent firm desires by women to limit births tend to be overridden by men.

Given the high rate of unplanned births, the contraceptive experience of those with current and potential unmet need—whether they have ever been users or have experienced side-effects or contraceptive failure—is of key importance. If substantial proportions of women are experiencing contraceptive failure or abandoning use, then it emphasizes the need, ironically, to include current users as having potential unmet need.

Table 2. Currently Pregnant or Contracepting Amenorrheic Women Who Wish to Limit or Space Their Next Birth, Botswana, 1988[a]

Contraceptive status	Women in union, by age group						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Pregnant							
Percent who want to limit	25.0	17.2	39.6	29.7	56.5	75.0	0.0
Percent who want to space	75.0	65.5	50.0	54.1	34.8	0.0	0.0
Number of women	8	29	48	37	23	8	1
Contracepting amenorrheic							
Percent who want to limit	11.1	22.9	42.4	50.0	62.5	55.5	27.8
Percent who want to space	55.5	62.9	43.5	35.9	32.5	27.7	11.1
Number of women	9	35	85	64	40	18	9

a. The residual group, not wanting to limit or space births, expressed the desire to have another birth within two years or are undecided.

Source. 1988 Botswana Family Health Survey.

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The author would like to thank the Central Statistics Office of the Ministry of Finance and Development Planning and the Ministry of Health, Botswana, for providing access to the data.

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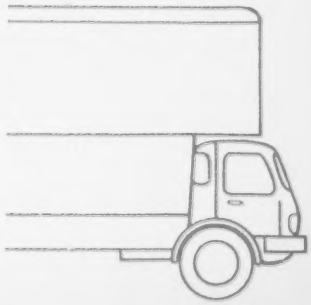

A 30-Year Revolution in World Family Planning

Over the past 30 years, beneath the ebb and flow of day-to-day news headlines, a long-running story of historic proportions has been unfolding: the worldwide family planning revolution.

This revolution was sparked by a gathering consensus that people should have control over their own fertility, as well as by concern about the ultimate effects of the unprecedented surge of population growth after World War II. Breakthroughs in contraceptive technology that reached the marketplace in the 1960s gave it further impetus.

In PRB's newest *Population Bulletin,* "The International Family Planning Movement," authors Peter J. Donaldson and Amy Ong Tsui chronicle the movement's history from its beginnings in the early 1900s, when birth control was considered immoral and was openly promoted only by a small band of advocates. (At that time, world population was less than 2 billion.)

Today, a transformation in fertility attitudes and practices ranges across the globe and involves the great majority of countries. Family planning flourishes in many poor, agricultural societies in the Third World—where in some cases, the very concept of family planning was unacceptable a few decades ago. In the less developed world today, over half of married women of childbearing age use contraception.

How did this revolution come to pass? One important factor, say Donaldson and Tsui, was the active promotion of family planning by various individuals, organizations, and government agencies, starting in the 1950s. Population specialists and economic planners argued that population increases would have mounting negative economic consequences, and that birth control, among other benefits, improved the health of and fostered reproductive freedom for women.

Acceptance came slowly. But as countries gained experience in implementing effective family planning programs, and as the effects of continued population growth became evident, more and more governments became active in providing family planning options for their own people.

Today family planning has become a widespread, well-institutionalized program that involves most of the world's governments, as well as such international organizations as the UN Population Fund, foreign assistance agencies, private philanthropic groups, nonprofit organizations, and a host of committed individuals.

The family planning movement, together with the effects of economic and social development, have helped lower world population growth from the 2.5-percent annual increase in the less developed countries during the 1960s to about 2 percent today—a difference that translates into a world population total that will be billions less in the early 21st century.

Donaldson is the Population Council's Senior Representative for South and East Asia. Tsui is Professor of Maternal and Child Health at the University of North Carolina, Chapel Hill, and Deputy Director of the Carolina Population Institute.

—A.H.

Copies of the 48-page *Population Bulletin,* "The International Family Planning Movement," by Peter J. Donaldson and Amy Ong Tsui (Vol. 45, No. 3, November 1990), can be ordered from PRB, Circulation Dept., P.O. Box 96152, Washington, D.C. 20090-6152; make checks payable to PRB. Or call 1-800-877-9881. Visa and MasterCard accepted. Prices for the *Bulletin* are: $7.00 a single copy; 2-10 copies, $6.50 each; 11-50 copies, $5.50 each; 51 or more, $4.00 each. Orders of $50.00 or less must be prepaid and include $1.00 or 3 percent of total order (whichever is greater) for postage and handling.

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Visiting Scholar Award:
Applications are invited for the PRB Visiting Scholar Award for the nine-month period beginning September 1991.

The recipient of the award, made available under a grant from the Andrew W. Mellon Foundation, will spend at least nine months at PRB's Washington, D.C., office conducting a population-related project of either domestic or international focus. Priority will be given to policy-oriented projects that attempt to synthesize work on a particular topic (including the scholar's own contribution).

The negotiable stipend is comparable with academic salaries and includes transportation costs. Applicants are requested to submit a brief estimate of transportation and salary requirements; applications combining the award with sabbatical leave are encouraged.

Closing date for applications is January 15, 1991. Interested individuals should submit a brief description of their planned activities, curriculum vitae, and a sample of recent publications to the address that follows.

Interns for Summer 1991:
Applications are invited for the PRB Internship Program for Summer 1991.

Open to both undergraduate and graduate students, PRB internships enable persons with a strong interest in population to assist professional demographers working on national and international issues. Some population-related work is useful but not a prerequisite. Interns usually work 35 hours a week and receive a stipend of $8.00 per hour.

Closing date for applications is February 1, 1991. Interested individuals should forward a letter of application to the address below, describing completed academic studies, future academic plans, population interests, and any additional information supporting their candidacy. Three letters of recommendation from instructors should be sent separately.

Contact:
Dr. William O'Hare
Population Reference Bureau, Inc.
777 14th St., N.W., Suite 800
Washington, D.C. 20005
Phone (202) 639-8040

Population and Environment

Continued from page 3

which has long linked environmental with food, peace, and population issues.

On the international front, the July Houston Economic Summit of the world's seven wealthiest countries issued a joint statement that called on its members to support the efforts of developing countries to maintain the balance between population and resources.

The upcoming 1992 UN Conference on Environment and Development in Rio de Janeiro, Brazil, has as a goal to raise consciousness about the links between environmental and population issues. This major conference will bring together 160 UN delegations and 20,000 activists, who will then bring this approach back to their home countries.

Linkages for the 1990s

World population is now passing through an extremely crucial period. While fertility *rates* have fallen since the peak 1960s, population *numbers* are rising rapidly, and the next two decades will see the largest annual population increases ever.

A recent meeting in Costa Rica of Central American business leaders—many of whom are politically conservative—put the linkage this way. The 1980s had been the decade of war and debt, they said. The 1990s would be the environmental decade, and the years 2000-2010 would be the population decade.

But a better prediction may be that the 1990s will prove neither to be exclusively the Decade of the Environment nor, for that matter, the Decade of Population—but as the decade when both sets of issues need to be addressed fully and in union.

—Mark Haskell

Mark Haskell is an international program officer in the Washington, D.C., office of the Population Resource Center. The Center monitors legislative issues of concern to the Population Association of America. Neither the center nor the association advocates any particular population policy but works to protect funding for quality demographic research.

SOFTWARE

UDemog is population-education software for the IBM PC and compatibles. *UDemog* teaches the student or independent user basic demographic concepts.

Demog includes: a demographic equation module, which introduces students to the three demographic components (births, deaths, and migration) and how to incorporate them in calculating natural increase and other rates. The second module introduces six basic fertility measures: crude birth rate, age-specific birth rate, total fertility rate, gross reproduction rate, and replacement-level fertility. The third module presents three basic mortality measures: crude death rate, age-specific death rate, and infant mortality rate. It also includes a column-by-column lesson on constructing a life table.

UDemog requires at least 256K of memory, DOS 3.0 or higher, and a color graphics card. Individual copies are $75.00; class and site licenses are available for institutions that belong to the Wisc-Ware consortium. Refer to Package 329 when ordering. Contact: Wisc-Ware, Academic Computing Center, 1210 West Dayton St., Madison, Wisc. 53706. Phone: (800) 543-3201.

—A.H.

POPULATION UPDATE

Estimated United States Population:

As of July 1, 1990	251,394,000
As of July 1, 1989	248,762,000

The above estimates, the latest available, include armed forces overseas and are from U.S. Bureau of the Census, *Current Population Reports,* Series P-25, No. 1064. The estimates do not yet incorporate the preliminary results of the 1990 Census.

Estimated World Population:

As of November 1990	5,352,000,000
Annual growth	93,000,000

Extrapolation from the mid-1990 population on PRB's *1990 World Population Data Sheet.*

Latest Provisional Statistics for the U.S.: June 1990

	12 months ending with June					
	Number		Rate			
Item	1990	1989	1990	1989	1988	1987
Live births	4,131,000	3,957,000	16.6	16.0	15.8	15.5
Deaths	2,170,000	2,149,000	8.7	8.7	8.9	8.7
Natural increase	1,961,000	1,808,000	7.9	7.3	6.9	6.8
Marriages	2,405,000	2,398,000	9.6	9.7	9.7	10.1
Divorces	1,172,000	1,183,000	4.7	4.8	4.8	4.8
Infant deaths	38,700	38,900	9.4	9.9	10.0	10.1
Population base (in millions)	. . .	. . .	249.6	247.1	244.5	242.2

Note. Rates are given per 1,000 population, except for infant deaths, which are given per 1,000 live births.
Source. Monthly Vital Statistics Report (Vol. 39, No. 6) from the National Center for Health Statistics.

TAKE A NUMBER

The World Population Clock 1990

		World	More developed countries	Less developed countries	Less developed (less China)
Mid-1990 population:		5,321,268,000	1,214,110,000	4,107,158,000	2,987,281,000
Births per:	Year	144,386,272	17,932,084	126,454,188	103,127,150
	Month	12,032,189	1,494,340	10,537,849	8,593,929
	Week	2,769,044	343,902	2,425,142	1,977,776
	Day	395,579	49,129	346,450	282,540
	Hour	16,482	2,047	14,435	11,773
	Minute	275	34	241	196
	Second	4.6	0.6	4.0	3.3
Deaths per:	Year	50,930,605	11,368,309	39,562,295	32,227,101
	Month	4,244,217	947,359	3,296,858	2,685,592
	Week	976,749	218,022	758,727	618,052
	Day	139,536	31,146	108,390	88,293
	Hour	5,814	1,298	4,516	3,679
	Minute	97	22	75	61
	Second	1.6	0.4	1.3	1.0
Natural increase per:	Year	93,455,668	6,563,775	86,891,893	70,900,050
	Month	7,787,972	546,981	7,240,991	5,908,337
	Week	1,792,296	125,880	1,666,415	1,359,723
	Day	256,043	17,983	238,060	194,247
	Hour	10,668	749	9,919	8,094
	Minute	178	12	165	135
	Second	3.0	0.2	2.8	2.2
Infant deaths per:	Year	10,490,406	286,264	10,204,142	9,343,374
	Month	874,200	23,855	850,345	778,615
	Week	201,185	5,490	195,695	179,188
	Day	28,741	784	27,957	25,598
	Hour	1,198	33	1,165	1,067
	Minute	20	1	19	18
	Second	0.33	0.01	0.32	0.30

Source. PRB's *1990 World Population Data Sheet.*

To the left is our annual population "clock," derived from the rates on PRB's *1990 World Population Data Sheet.* The pace of world population growth is at its fastest ever, an annual addition of 93 million a year. That amount exceeds the populations of the united Germany (80 million), which is in the news so often today. Every day, the world has a net gain of about 256,000 new residents, or a weekly amount somewhat larger than the population of Philadelphia.

Over 90 percent of world growth takes place in the less developed countries of Africa, Asia, and Latin America. The more developed countries account for only about 6.6 million increase each year and two-thirds of that is in the United States and the Soviet Union alone.

The number added is projected by the United Nations to rise to nearly 100 million a year by the end of the century. This projection, if correct, would represent the all-time peak of persons added. The downturn in numbers added will be very gradual so that, even 25 years after the turn of the century, the annual increment would still be 80 million.

–C.H.

ADDENDA

HERMAN
by JIM UNGER
IT'S ABOUT HALFWAY ACROSS THE GALAXY.
JUST A SMALL PLANET BUT WE LIKE IT...
WE CONQUERED DISEASE AND HUNGER CENTURIES AGO.
NO WAR. NO CRIME. NO TRAFFIC ACCIDENTS.
WHAT'S THE POPULATION?
286 TRILLION.

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CURRENT READINGS

PRB welcomes materials on population topics for possible inclusion in Current Readings. Publishers may address review copies to Book Review Editor, POPULATION TODAY, Population Reference Bureau, 777 14th St., N.W., Washington, D.C. 20005

ONE EARTH, ONE FUTURE: Our Changing Global Environment, by Cheryl Simon Silver with Ruth S. DeFries for the National Academy of Sciences. Washington, D.C.: National Academy Press, 1990. 196 pages. $14.95 hardbound. ISBN 0-309-04141-4.

Sponsored by the National Research Council (NRC) and written for a general audience, this illustrated book draws from research reported at the NRC's 1989 Forum on Global Change and Our Common Future. On its own, it serves as a broad introduction to earth-systems science.

This science deals with the earth as a unified ecological system, concentrating on the ecological interactions between the land, sea, and air—and increasingly, the earth's human population. The more massive and industry-dependent that our population becomes, the greater the potential for environmental impact. Or, in the book's parlance, "Humans do not tread softly on the earth."

Some consequences of human activity have become particularly apparent in recent years: diminishing tropical rainforests, acid rain, and the prospect for global warming and rising sea levels. The impact of further population growth could be disastrous. Economic development, however, is one factor that should help to abate such growth, the study points out. But then the question arises: How can a sustainable environment coexist with such development?

The answer is that "painful choices" will have to be made "in how we exploit our resources, direct investments, develop technologies, and organize our institutions," say the authors of *One Earth, One Future*. "Such choices require political will" but they must be addressed. Although other issues may make acute demands on society's attention, global environmental change is already well advanced and "may well be the most pressing international issue of the coming century."

—Art Haupt

DATING, MATING, AND MARRIAGE, by Martin King Whyte. New York: Aldine de Gruyter, 1990. 340 pages. $44.95 hardbound; $24.95 paperback. ISBN 0202-304-159; 0202-304-167.

The broad aim of this book is to examine the mate selection process and draw implications for the state of marriage in the United States. Using data from a Detroit area survey, the author assesses the extent to which courtship and mate choice patterns have changed over the last several decades. He also examines a variety of established ideas that relate dating behavior and wedding characteristics to marital success. All the analyses are based on the retrospective reports of ever-married women age 18 to 75 living in the greater Detroit area.

Whyte finds that many aspects of dating, mate choice, and weddings have not changed significantly over the course of this century. In particular, there is little indication that couples are more casual about dating or more independent from the opinions of their parents regarding mate selection. Wedding celebrations appear to be as elaborate today as they were in previous decades, suggesting that the wedding ceremony continues to mark an important role transition for the bride and groom.

The results of the study also suggest that marital success depends less on sociodemographic characteristics and previous dating experiences than on the reported level of romantic love at the time of the wedding and the way that couples arrange their lives together.

Dating, Mating, and Marriage offers a rich description of courtship and marriage patterns and challenges established ideas about the tie between the two; there is plenty of food for thought in these pages. A shortcoming of the book, however, is its lack of a unifying theoretical framework. As a consequence, the author often strains to link his findings to his broad concern, "What is happening to American marriage?"

Nevertheless, readers interested in mate selection and marriage will find this book useful for its investigation of assumptions that are frequently promoted but rarely evaluated empirically.

—Ruth Berg

Books Received

CONTRACEPTION: A Guide to Birth Control Methods, by Vern L. Bullough and Bonnie Bullough. Buffalo, N.Y.: Prometheus Books, 1990. 177 pages. $13.95. ISBN 0-879-75589-x.

FRIENDS OR STRANGERS: The Impact of Immigrants on the U.S. Economy, by George J. Borjas. New York: Basic Books, 1990. 274 pages hardback. $22.95. ISBN 0-465-02567-6.

HEALTH RESEARCH: Essential Link to Equity in Development, by Commission on Health Research for Development. New York: Oxford University Press, 1990. 136 pages. $13.95 paper. ISBN 0-19-520838-2.

INTERNATIONAL HANDBOOK ON INTERNAL MIGRATION, by Charles B. Nam, William J. Serow, and David F. Sly. Westport, Conn.: Greenwood Press, 1990. 438 pages. $75.00 hardback. ISBN 0-313-25858-9.

THE 1990 DEVELOPMENT REPORT CARD FOR THE STATES, by the Corporation for Enterprise Development. Washington, D.C.: Corporation for Enterprise Development, 1990. 154 pages. $48.00 paper. ISBN 0-9605804-9-2.

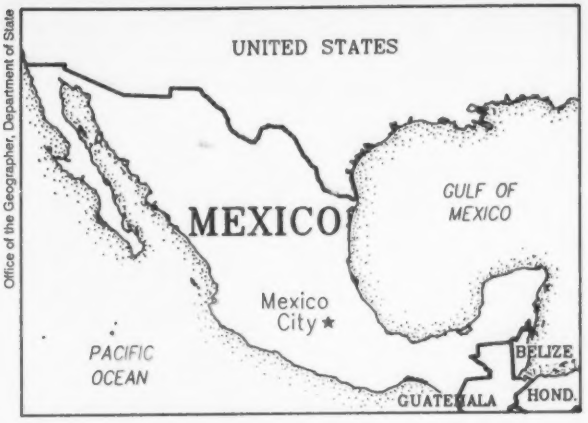
POPULATION POLICY, CONTEMPORARY ISSUES, by Godfrey Roberts. New York: Praeger, 1990. 216 pages. $42.95. ISBN 0-275-93039-4.

WORLD TABLES, 1989-90, edited by the World Bank. Baltimore, Md.: Johns Hopkins University Press, 1990. 646 pages. $34.95. ISBN 0-8018-4086-4.

MEXICO

Population (1990): 85 million (est.)
Population Density: 106 people per square mile
Land Area: 761,600 square miles
Births per 1,000 population: 30
Deaths per 1,000 population: 6
Rate of Natural Increase: 2.4 percent
Total Fertility Rate: 3.8 children per woman
Infant Mortality Rate: 50 deaths per 1,000 live births
Life Expectancy: 68 years
GNP per capita (1988): $1,820
Capital: Mexico City

by Laurie Gill



Office of the Geographer, Department of State

Until half a century ago, Mexico was a country with relatively modest population size. In 1940, its population was less than 20 million, less than one-sixth that of its northern neighbor, the United States.

Since that time, the population has mushroomed to an estimated 85 million, according to Mexican population experts familiar with the 1990 Census tally and its adjustments. This growth was fueled by declining death rates and still-high fertility. The recently reported 1990 Census results put the country's population at a lower-than-expected level, results that are now thought to be reasonable estimates of Mexico's growth (see *PT*, October 1990). Mexico's population stands at about one-third that of the United States, making it the 11th most populous country in the world.

Mexico's total fertility rate has decreased from 4.7 average lifetime children per woman in 1984 to 3.8 in 1990. The crude birth rate has dropped to 30 births per 1,000 population. When this rate is coupled with Mexico's low death rate of 6 deaths per 1,000 population, the result is a still-robust growth rate of 2.4 percent.

Mexico's fertility decline can be attributed to economic development and increased knowledge and use of family planning. Since 1973, the government has endorsed family planning programs because it felt Mexico's fertility was too high. As a result, contraceptive prevalence among women in union of reproductive age has more than tripled—from 13 percent to 53 percent.

Despite these improvements, the momentum of population growth is outpacing the government's attempts to improve the Mexican economic situation. In the past decade, the country has run up an immense foreign debt of $100 billion, the result of falling oil prices in the 1980s and struggling economic growth.

Economic growth to create jobs remains one of the main challenges facing the government of President Carlos Salinas de Gotari. Each year over 1 million people enter the labor force, yet only 100,000 to 200,000 new jobs are created. This leaves roughly 800,000 people without full employment, forcing them to look for opportunities in the informal sector or in another country.

Because of the high levels of unemployment and underemployment, it is estimated that hundreds of thousands of Mexicans emigrate illegally to the United States in search of work each year. In addition, according to the U.S. Immigration and Naturalization Services, in 1988, 95,000 Mexicans were admitted into the United States legally. Mexicans who work in the United States remit some $6 billion to their country every year. This is equivalent to roughly 29 percent of Mexico's export earnings in 1988, a significant boost to the country's balance of payments.

In 1987, the Mexican government officially viewed the level of emigration as satisfactory even though Mexico loses an estimated 104,000 people annually as a result of net international migration. The Mexican government is instead concerned about the influx of refugees from troubled El Salvador and Guatemala. It is estimated that as of 1987, over 175,000 refugees in Mexico were seeking political asylum.

The United States and Mexico are negotiating a potentially historic free-trade agreement between the two countries. President Salinas favors broader ties with the United States because they offer hope for spurring the Mexican economy. Increased trade as well as increased assistance could give the Mexican economy what it needs to rebound and grow to accommodate its expanding population.